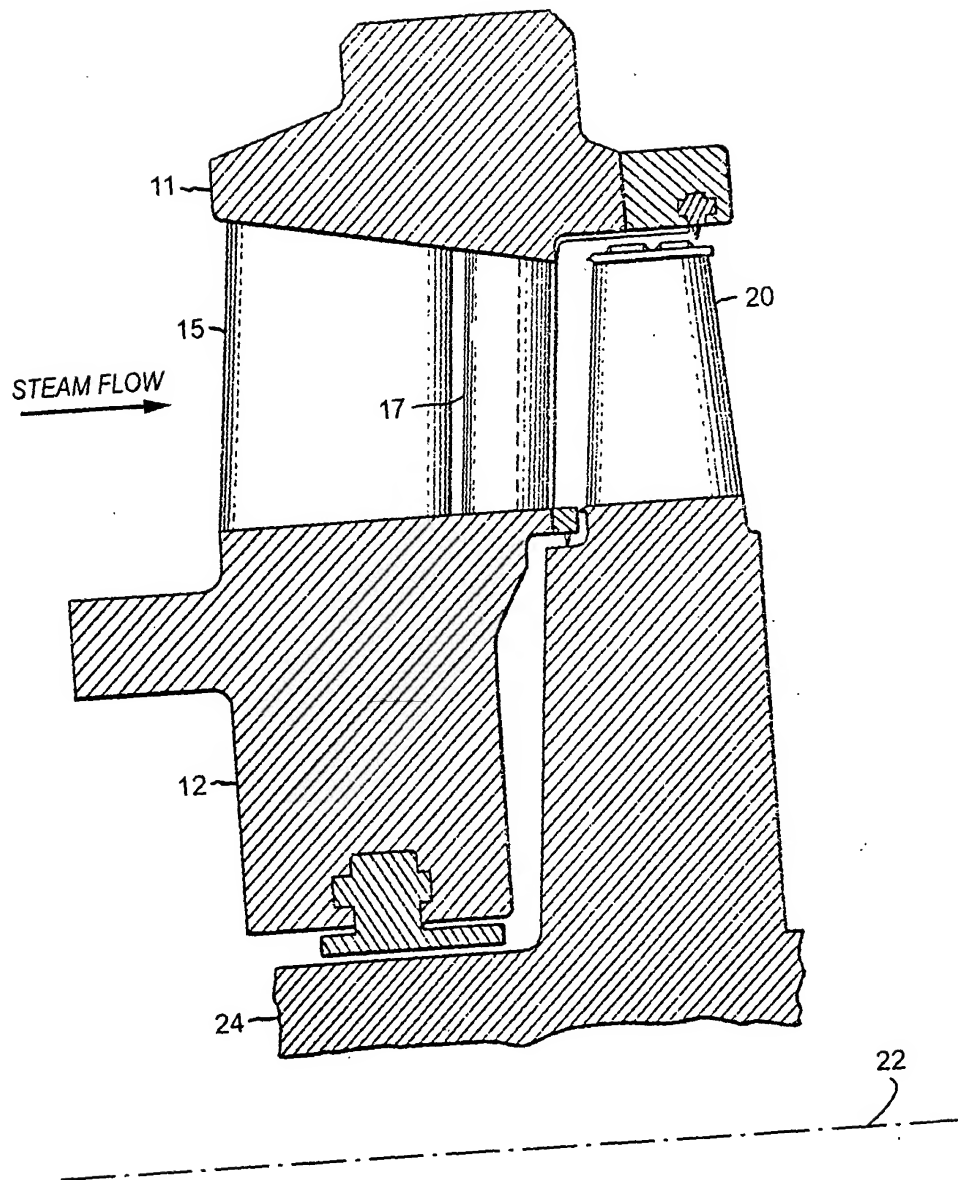
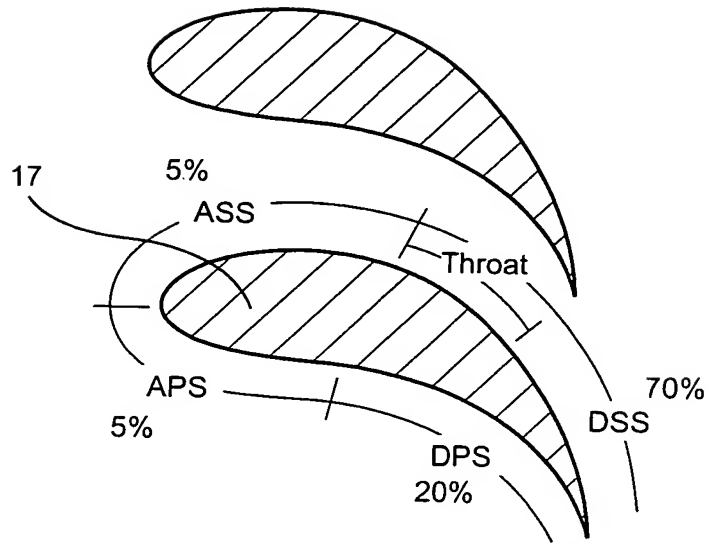
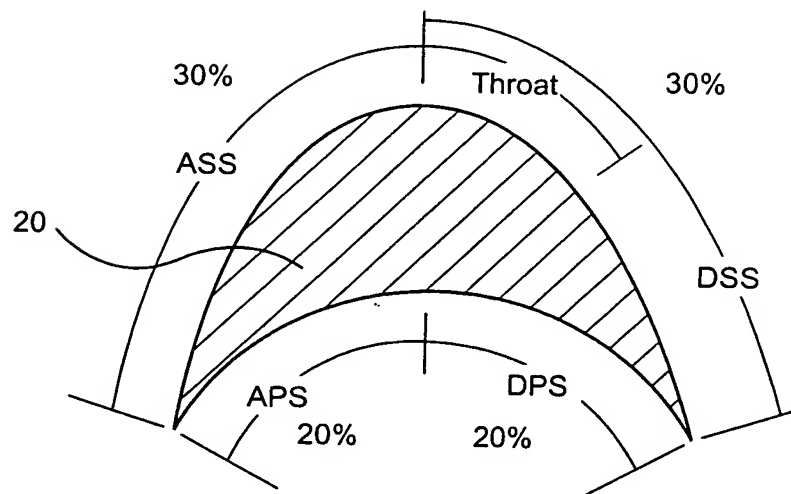
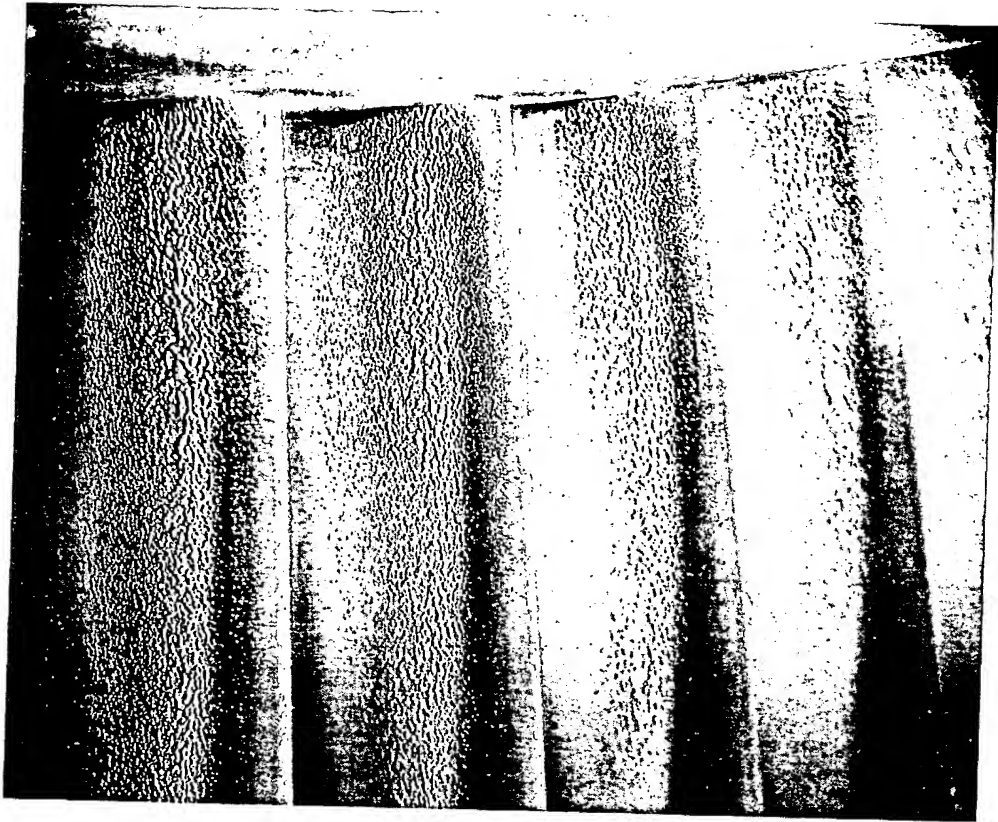


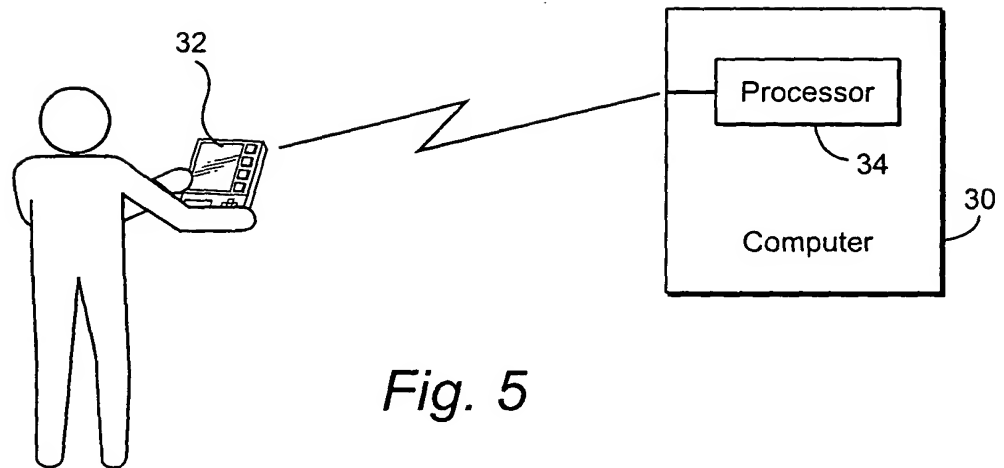
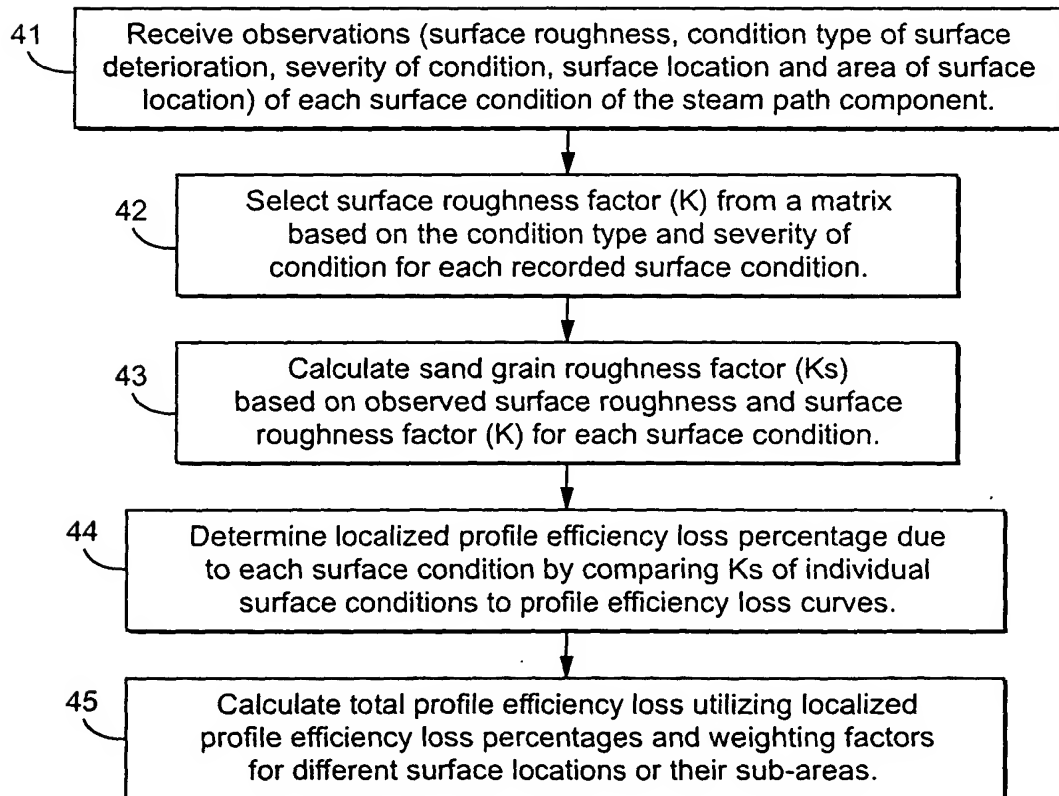
Fig. 1



*Fig. 2**Fig. 3*



*Fig. 4*

*Fig. 5**Fig. 6*

STAGE #										Nozzle Data									
7										REN									
										Throat at Pitch									
										Reynold's Number									
										Axial Width									
										Base RMS									
										Influence Factor									
										0.100									
TOTAL PROFILE LOSS OF NOZZLE		0.52%		Surface Location		% of local area		R <sub>a-rms</sub> μ-in		Severity Rank of Surface Condition		Surface Condition Type		k <sub>s</sub> Factor from CRB Matrix		k <sub>s</sub> /L (x 10 <sup>-3</sup> )		PE Loss %	
% of S. F. Loss	5%	ASS <sub>1</sub>	50%	68	2	3	0.119	0.014	0.177%										
		ASS <sub>2</sub>	50%	65	2	3	0.119	0.014	0.155%										
		ASS <sub>3</sub>	0%																
5%	APS <sub>1</sub>	100%	75	2	3	0.119	0.016	0.228%											
	APS <sub>2</sub>	0%																	
	APS <sub>3</sub>	0%																	
0%	OSWAS	0%																	
0%	ISWAS	0%																	
7%	THT <sub>1</sub>	50%	100	3	3	0.332	0.059	1.276%											
	THT <sub>2</sub>	50%	70	2	3	0.119	0.015	0.192%											
	THT <sub>3</sub>	0%																	
0%	OSW <sub>THT</sub>	0%																	
0%	ISW <sub>THT</sub>	0%																	
63%	DSS <sub>1</sub>	50%	91	3	3	0.332	0.054	1.191%											
	DSS <sub>2</sub>	50%	58	2	3	0.119	0.012	0.104%											
	DSS <sub>3</sub>	0%																	
20%	DPS <sub>1</sub>	100%	75	2	3	0.119	0.016	0.228%											
	DPS <sub>2</sub>	0%																	
	DPS <sub>3</sub>	0%																	
0%	OSW <sub>DS</sub>	0%																	
0%	ISW <sub>DS</sub>	0%																	
TOTAL		100%							TOTAL	0.524%									

Discharge Side Losses Must equal 90%	Discharge Side Suction Surface Must equal 70%	Throat Losses 7-20% DSS	Admission Side Losses Must Equal 10%
	DPS Must Equal 20%	Discharge Side Losses Should Equal 76-90%	

60	54	55	51	53	52	56	57	58
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Fig. 7

Surface Condition Type of Deterioration	Severity Rank of Surface Condition										
	New surface or None of the I.F. defects	Very Light	Light	Moderately Light	Moderate	Moderately Heavy	Heavy	Very Heavy	Severe		
	New/None 1	VL 2	L 3	ML 4	M 5	MH 6	H 7	VH 8	SVE 9		
New machining marks with flow (Power-File or Belt Sander)	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
New machining marks X-flow (Swirls or Roloc Sanding Disc)	1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Coatings (Plasma/HVOF)	2	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Deposits (smooth)	3	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2
Deposits-Striated linear build-ups. Typ. in latter LP and some IP stages	4	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2
Deposits-Fences. Typ. in the latter LP stages.	5	0.1	0.8	1	1.2	1.4	1.65	1.8	2	2.5	2.5
Solid Particle Erosion (SPE)	6	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2
Grit Blast Cleaning (BC)	7	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2
SPI-Small Particle Impingement	8	0.1	0.8	1	1.2	1.4	1.65	1.8	2	2.5	2.5
FOD-Foreign Object Damage	9	0.1	0.8	1	1.2	1.4	1.65	1.8	2	2.5	2.5
Water Erosion	10	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2
Corrosion Pitting	11	0.1	0.119	0.332	0.546	0.76	0.973	1.186	1.4	2	2

**FORMULAS**

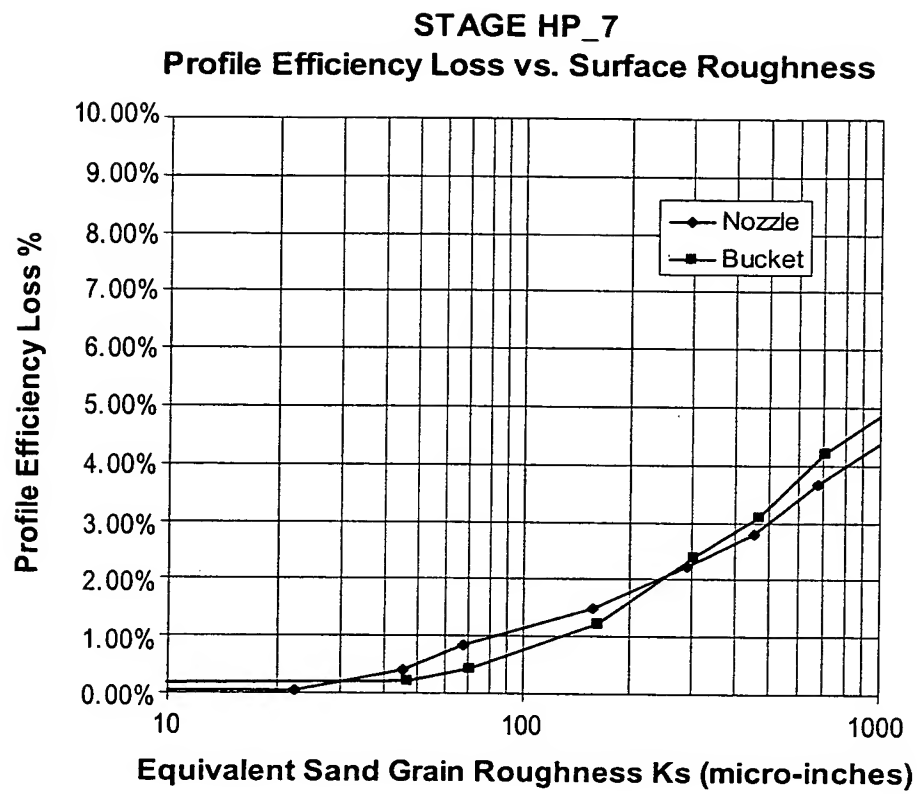
Nozzles:

Buckets:

$$SF_{TOTAL LOSS Nozz} = 10\%(ASS+APS)+20\%(DPS)+70\%(THT +DSS)$$

$$SF_{TOTAL LOSS Bkt} = 100\%(.30*ASS+.20*APS+.30*DPS+.1*THT+.20*DSS)$$

Fig. 8



*Fig. 9*